

thereof, said lattice framework serving to distribute load among the lattice structure, said building formed by connecting together a plurality of said building unit modules.

REMARKS

This is a proposed Amendment submitted in advance of a personal interview scheduled on October 10, 2002 at 1:00 o'clock with Examiner Chi Q. Nguyen and his Supervisor. This Amendment will attempt to further move things forward so as to minimize the time required during the interview and to address any potential outstanding questions.

First, claim 12 has been further amended to recite that the building unit module which has been the subject of the claims to date is but one of a plurality of building unit modules connected together to form a building. The invention is directed to the structure of each individual building unit, but the entirety of the invention relates to forming a building from a plurality of individual building units. Each of the building units is independent of the other, and each is connectable to one of the others to construct the building.

Second, the objection to the drawings is not understood, and perhaps, the objection to the drawings further illustrates some potential confusion with this pending application. A proposed amended Figure 4 was submitted with the last Amendment, and there is no mention of it in the Examiner's Final Rejection. This is not understood, as two small sections of sheeting was shown in the proposed amended Fig. 4, and perhaps, this was not seen by the Examiner. A duplicate of what was submitted with the last Amendment as to proposed changes to Fig. 4 is enclosed for the Examiner's review. Arrows have been added to further show where fragments of the sheeting is shown on both the front and back surfaces of the building module.

Objection as to the use of the term "the ribs" may suggest that there may be confusion between the English words used. This patent application emanates from the United Kingdom, and English English is sometimes different from American English. Indeed, the undersigned had indicated an earlier confusion of the use of "sections" as

used with the term "frame sections". Ultimately, it was understood that the term frame sections really meant sides, and a rectangular frame member is really a rectangular frame formed of four sides or four frame sections. As to the term ribs, this is a term which is taken from the way boats are sometimes built with ribs (much like a person) interconnected by cross structures, perhaps wood or metal, to form a hull. Thus, the term rib was meant to be an alternative to "rectangular frame member," and it is so stated on page 6 of the specification:

"The module shown in Figures 1 and 2 comprise a series of rectangular frame members 4 which are termed hereafter 'ribs'."

Thus, each rectangle has sometimes been referred to as a rib, and the modules are formed of a plurality of such rectangles or rectangular frame members just as a boat hull is formed, i.e., by connecting a plurality of ribs together with connecting structures .

To the extent there has been any confusion concerning the use of the words frame members, frame sections and ribs, it is believed the above explanation in conjunction with other prior explanations in this application should address these questions so that there should be no ambiguity of the use of these terms.

In order that this proposed reply be complete, and at the specific direction of the client in the United Kingdom, because of the importance of this invention to Mr. Colver, he has asked that we restate, once again, in great detail, that which he has invented and why it is patentable. To the extent the following represents a repeat of prior arguments, we apologize for lengthening this record, but the client, in view of his need to be certain that no possible error or omission occurs, has asked that we reaffirm and restate again in one document why his invention, indeed, is patentable.

The basic concept of the invention is to provide a module which can be used to form part of a building. The module can be constructed offsite and also fitted out and then transported to the site and connected with other modules to create the

building. The module must therefore meet a number of criteria:

1. It must be an independent structure which is self-supporting independently of other modules. This is necessary to allow the module to be formed in one location offsite and then transportable to the site.
2. The module must be such that a building can be created simply by connecting the modules together. This in turn means that classic methods of building formation where the loads are transmitted through joists and beams at the extremities of the building cannot be used.
3. The module must be capable of fit-out offsite but connection to other modules onsite. This requires that the module is formed to define a complete interior but have an exterior which is connectable to other modules.

To provide a module meeting all these criteria, the inventor came up with the idea of what is essentially a parallelepiped structure consisting of plural vertically oriented rectangular frame members tied together by runners. The rectangular frame members each comprise four frame sections: two vertically oriented frame sections which form part of the sides of the module and two horizontally oriented frame sections which form part of the top and bottom. The frame members can either be formed first and then joined by the runners, or they can be created at the same time as connection to the runners.

The inventor viewed the form of construction as somewhat similar to that which can be used to create a boat. The hull of a boat can be created by connecting together multiple curved beams with struts extending the length of the hull. The curved beams are generally termed "ribs" and that is why "rib" is used as an alternative term for the rectangular frame members.

The combination of plural rectangular frame members and multiple horizontal runners produces a lattice framework in which the load is distributed throughout the structure. This results in part in meeting criterion 2, since it allows the building to be

constructed without requiring use of traditional building methods.

The horizontal runners are connected internally of the rectangular frame members and sheeting is then attached to the horizontal runners. This arrangement meets all of the three criteria, since it allows the module to be fitted out offsite and then transported to the site and connected to other modules.

The module additionally consists of horizontal corner members, each extending across the framework along the length of the module. These corner members rigidify the lattice structure and also help to allow connection of the module to other modules. Therefore, they contribute to meeting criteria 1 and 2.

Claim 12 and those depending thereupon (as well as claim 21 which can be amended to be consistent with claim 12), all specifically recite the exact structure which has been discussed above. Thus, the argument for patentability is supported by the structure currently found in claim 12 which provides the material benefit identified in these remarks. Further, amending the claim to recite that a building is formed of a plurality of such building unit modules should further enhance patentability of this invention as consistent with the arguments presented.

The discussion of the invention hopefully makes it clear that the second drawing objection is not appropriate. Figures 3a and b are intended to show the formation of the ribs. Therefore, it is quite appropriate that they only show part of one rib. Furthermore, in connection with the Examiner's comment in the Response to Arguments on Figure 4, the figure shows seventeen rectangular frame members each formed by a combination of two frame sections 5a and two frame sections 5b. Thus Figure 4 shows seventeen ribs.

Overall, the features of the module as defined in new Claim 12 come together to provide a module which is an independent structure capable in itself of supporting loads and which is joined with other modules to produce a building.

Turning to the prior art, the Examiner has rejected Claim 12 on the basis of U.S. Patent 3605350 to Bowers and U.S. Patent 6267079 to Eby. Considering Bowers first, this does disclose a modular housing structure but one very different from the inventor's.

The Bowers structure consists of modules, each of which comprise one half of a room. Each module defines an open face. On site, two modules are arranged with their open faces together and the modules are then joined together.

In more detail, each Bower module consists of a base frame and a roof frame supported from the base frame by four corner posts. A floor is mounted in the base frame and end walls and an outer side wall are supported on the floor and connected to the roof frame.

The base frame comprises inner and outer side beams 12 and 14 and plural intermediate cross beams 16 which extend between the side beams. The ends of the inner side beam 12 are connected to inner corner posts 18, while the ends of the outer side beam 14 are connected to outer corner posts 20.

The roof frame takes a similar form to the base frame. It comprises inner and outer side beams 52 and 54 with intermediate cross beams 56 and 60. The ends of the inner side beam 52 are connected to the inner corner posts 18 while the ends of the outer side beam 54 are connected to the corner posts 20.

A wooden sub-flooring matrix is attached to the base frame. As illustrated in Figure 3, the wooden sub-flooring matrix comprises stringers 28 which run transversely to the cross beams 16 and wooden spacers 30 which are positioned on the cross beam 16 between each pair of stringers 28.

Thus, the parts 30 are not sections of a rectangular frame member. Instead they are wooden blocks mounted on beams 16 between each adjacent pair of wooden stringers 28.

The roof frame is also provided with a wooden matrix. The sub-roofing matrix is illustrated in Figure 6. It comprises a plurality of ladders laid across the cross

beams 56 and 60. Each ladder comprises a pair of horizontal stringers 64 and a plurality of transverse rails 66 which are nailed to the stringers.

Thus, the parts 66 are not frame sections. Instead they are blocks of wood in the form of ladder rungs.

Furthermore and crucially, the parts 30 and 66 are elements of, respectively, sub-flooring and sub-roofing matrixes which are not load bearing and instead just serve to allow attachment of the floor and roof to the base frame and the roof frame.

The load bearing elements of each of the Bowers modules are the base frame, the roof frame and the corner posts. The sub-flooring and sub-roofing matrixes are not load bearing. Furthermore, the end wall and side wall frameworks 80 and 82 are not load bearing. This is made clear at column 3 lines 49 to 52, where it is stated:

The steel framework consisting of base, roof and posts provides a rigid frame structure that eliminates any requirement for the end and side walls to be load bearing.

Thus, the load bearing structure of each of the Bowers modules comprises just the two frames and the corner posts. This structure can be considered as providing two rectangular frame members, one at each end of the module. But there is no third rectangular frame member as required by Claim 12. Providing a third rectangular frame member at an intermediate position would be contrary to the teachings of Bowers, since there would then not be an open side.

Alternatively, the structure could be considered as providing a rectangular frame member at each side of the module. But again there is no third rectangular frame member. And again it would be contrary to Bowers to provide an intermediate frame member since the end walls would then include load bearing members.

Thus Bowers proposes a module which is of classic form in that the loads are borne by the corner posts and their connections in the form of the roof frame and base frame. As discussed above, this is very different from the lattice structure of the inventor's module.

Furthermore, the Bowers module does not have at least three rectangular frame members each comprising two vertical frame sections and two horizontal frame sections.

The Bowers module also does not have horizontal runners connecting the vertical frame sections. In the Office Action the Examiner equated the parts 28 and 64 with the horizontal runners. However, as discussed above, these parts are the stringers of the sub-flooring matrix and the sub-roofing matrix. They serve to allow attachment of the flooring and roofing to the steel frame. They are laid on horizontally running beams, 16 and 56. They do not connect vertical frame sections.

Still further, the Bowers module does not have corner members which are attached to the frame members. The Examiner equated the parts 12, 52 and 56 with the corner members. However, as discussed above, 12 identifies the inner side beam of the base frame. It is therefore part of the base frame and not a corner member attached to a rectangular frame member. Similar comments apply to the part identified by 52, which is the inner side beam of the roof frame. The parts identified by 56 are cross beams and do not run the length of the module.

Bowers therefore fails to disclose a number of structural elements in Claim 12. Crucially it fails to disclose the feature of three rectangular frame members. It would be totally contrary to Bowers to have three rectangular frame members for the reasons set above

As stated at the beginning of the discussion of Bowers, while Bowers discloses modules, the form of those modules is totally different to that of the inventor's modules. The Bowers modules use classic building techniques and do not have the crucial lattice framework of the inventor's module.

Turning to U.S. Patent 6267079, the most obvious point to make in respect of this is that it discloses a fish cage. A fish cage is something totally different from a building unit module. There is absolutely no reason whatsoever why the skilled man seeking to provide a building module would look at fish cages.

The fish cage of U.S. Patent 6267079 does comprise a parallelepiped frame 26. This is formed from a plurality of straight pipe sections 32 with molded double elbow fittings 34 and molded double T-fittings 35. The frame 26 is covered by netting 28.

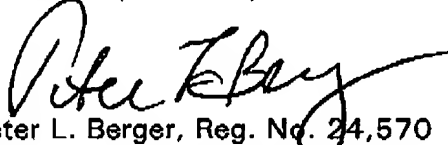
The frame 26 can be considered as having three rectangular frame members. These frame members are not, however, connected by plural horizontal runners. Part 31 is the netting which covers frame 26. Lines of netting are not "runners".

There are no corner members such as item 12 in the present invention. The parts 35 which the Examiner equated with corner members are the double T-fittings which connect the sections 32. They are therefore simply connectors and not corner members running the length of the frame. Still further, there is no suggestion to combine a plurality of Eby enclosures to form a building.

As stated above, this Amendment is a Proposed Amendment submitted for purposes of advancing the personal interview on October 10, 2002.

Respectfully submitted,

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AMENDED CLAIM MARKED UP TO SHOW ALL THE CHANGES

12. (Twice Amended) A building formed of a plurality of building unit modules, each of said building unit modules comprising a lattice framework formed of at least three parallel vertically oriented rectangular frame members spaced along the length of the module, each of said frame members comprising four frame sections forming a rectangle, said four frame sections having vertical and horizontally oriented frame sections to form said rectangular frame member, multiple parallel horizontal runners connected to the vertical frame sections of the frame members internally thereof, the runners each extending transversely to the vertical frame sections along the length of the module, sheeting attached to the runners to form an enclosure which is defined exteriorly by the lattice framework, and horizontal corner members each extending across the framework along the length of the module and connected to the frame members at the corners thereof, said lattice framework serving to distribute load among the lattice structure, said building formed by connecting together a plurality of said building unit modules.

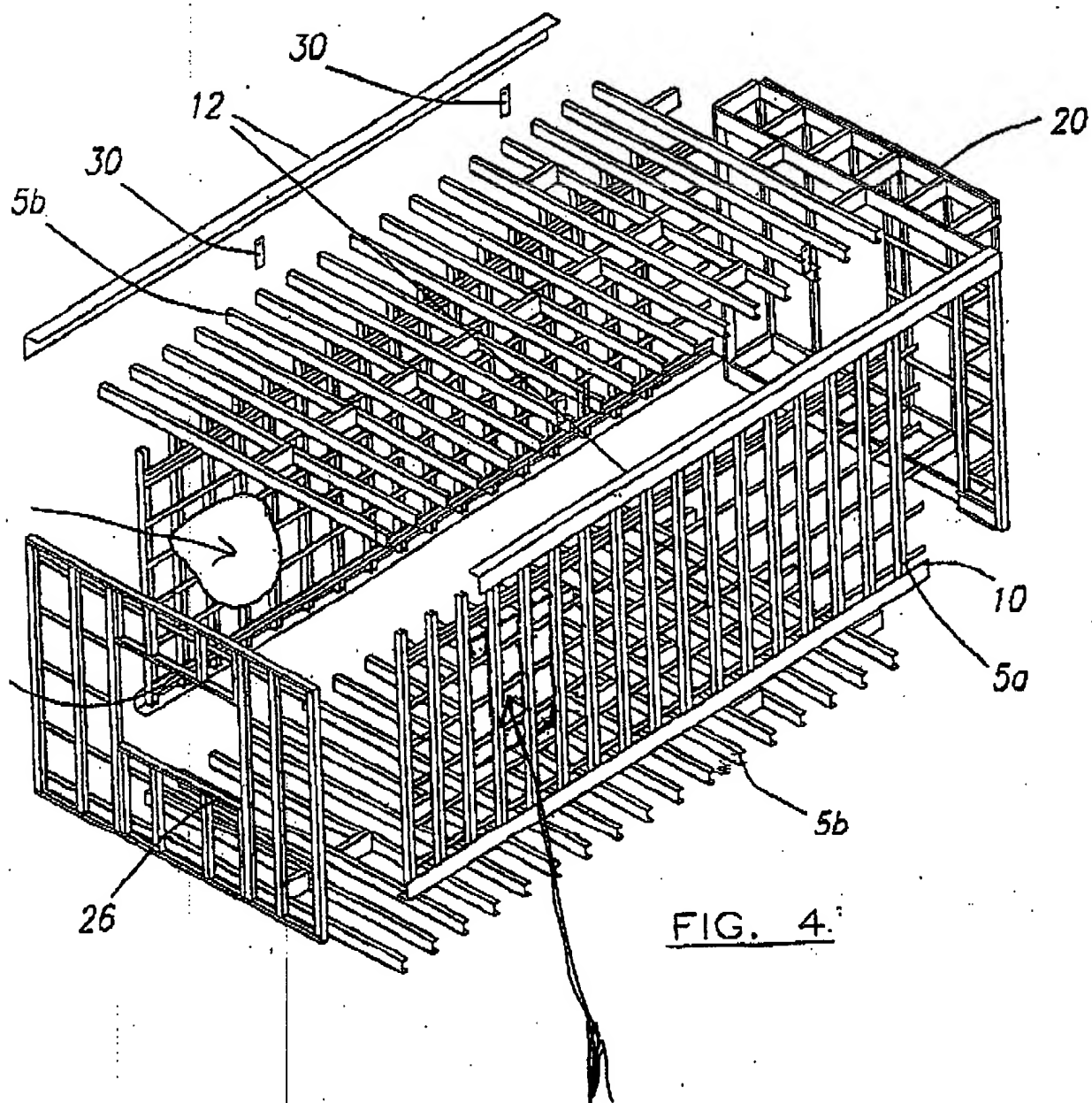


FIG. 4.